Claims:

1 1. A method for emulating a fibre channel port by a library of hard disk drives,

2 comprising:

3   providing an output port;

4   addressing one or more hard disk drives in the library using a fibre channel

5   communications protocol;

6   fetching the one or more hard disk drives; and

7   electrically coupling the one or more hard disk drives to the output port.

1 2. The method of claim 1, further comprising coupling the one or more hard disk

2 drives to a destination cell which is electrically connected to the output port.

1 3. The method of claim 1, further comprising issuing an instruction in response to

2 said step of addressing for waiting before initiating data communications with the one or more

3 hard disk drives.

1   4.   The method of claim 1, further comprising receiving incoming data before said

2   step of electrically coupling the one or more hard disk drives to the output port, temporarily

3   storing said data, and writing said data to the one or more hard disk drives after said step of

4   electrically coupling the one or more hard disk drives to the output port.

1   5.   The method of claim 1, further comprising temporarily storing data associated with

2   the address provided by said step of addressing prior to said step of fetching the one or more hard

3   disk drives, and outputting said data prior to said step of fetching the one or more hard disk drives

4   but subsequent to said step of addressing.

1   6.   The method of claim 1, further comprising providing data associated with the

2   address provided by said step of addressing, recognizing said data with said fibre channel

3   protocol, and interpreting said data with an upper layer protocol.

1   7.   An article of manufacture for emulating a fibre channel port for use in a library of

2   hard disk drives including a library controller, said article of manufacture comprising a computer-

3   readable storage medium tangibly embodying a program of executable computer instructions

4   which cause said controller to perform steps comprising:

5   addressing one or more hard disk drives using a fibre channel

6   communications protocol;

7   fetching the one or more hard disk drives with a robotic picker; and

8   electrically coupling the peripheral device to an output port.

1   8.   The article of manufacture in claim 7, wherein said program of computer

2 instructions may further cause said controller to command said picker to couple the one or more

3 hard disk drives to a destination cell which is electrically connected to the output port.

1   9.   The article of manufacture in claim 7, wherein said program of computer

2 instructions may further cause said controller to issue an instruction in response to said step of

3 addressing for waiting before initiating data communications with the one or more hard disk

4 drives.

1   10.   The article of manufacture in claim 7, wherein said program of computer

2 instructions may further cause said controller to receive incoming data before said step of

3 electrically coupling the one or more hard disk drives to the output port, temporarily storing said

4 data, and writing said data to the one or more hard disk drives after said step of electrically

5 coupling the one or more hard disk drives to the output port.

1   11.   The article of manufacture in claim 7, wherein said program of computer

2 instructions may further cause said library controller to temporarily store data associated with the

3 address provided by said step of addressing prior to said step of fetching the one or more hard

4   disk drives, and outputting said data prior to said step of fetching the one or more hard disk drives

5   but subsequent to said step of addressing.

1   12.   The article of manufacture in claim 7, wherein said program of computer

2   instructions may further cause said library controller to receive data associated with the address

3   provided by said step of addressing, recognize said data with said fibre channel protocol, and

4   interpret said data with an upper layer protocol.

1   13.   An apparatus for emulating a fibre channel port for use in a library of hard disk

2   drives, comprising a library having a fabric port connected to a host computer and an output port

3   connected to a destination cell adapted for removable coupling to a selected one of the hard disk

4   drives.

1   14.   A method for communicating between a host computer and a library of one or

2   more types of memory elements controlled by a library controller, comprising the steps of:

3   forming a first association of a plurality of commands for instructing a

4   plurality of different types of memory elements which the host

5   computer expects the library to be according to a fibre channel

6   protocol;

7   forming a second association of said plurality of commands and a plurality

8   of codes particularly adapted for controlling respective memory

9   elements in the library;

10   receiving a command from a host computer according to the fibre channel

11   protocol;

12   identifying the type of memory element which the host computer expects

13   the library to be;

14   identifying said command by consulting said first association;

15   selecting, by the controller, one or more of the memory elements in the

16   library for carrying out the command;

17   identifying the associated said code by consulting said second association

18   for said selected memory elements; and

19   executing the identified code for carrying out the command in the library

20   with said selected memory elements.

1   15.   The method of claim 14, wherein said step of executing the identified code further

2   comprises reading data from a hard disk drive in the library, formatting said data according to the

3   identified said protocol, and thereafter sending said data to the host computer.

1   16.   The method of claim 14, wherein said step of carrying out the executed code

2   further comprises writing to a hard disk drive in the library.

1   17.   An article of manufacture for use in communicating between one or more host

2   computers and a library of one or more types of memory elements controlled by a library

3   controller, said article of manufacture comprising a computer-readable storage medium tangibly

4   embodying a program of executable computer instructions which cause said controller to perform

5   steps comprising:

6   forming a first association of a plurality of commands for instructing a

7   plurality of different types of memory elements which the host

8   computer expects the library to be according to a fibre channel

9   protocol;

10   forming a second association of said plurality of commands and a plurality

11   of codes particularly adapted for controlling respective memory

12   elements in the library;

13 receiving a command from a host computer according to the fibre channel

14 protocol;

15 identifying the type of memory element which the host computer expects

16 the library to be;

17 identifying said command by consulting said first association;

18 selecting, by the controller, one or more of the memory elements in the

19 library for carrying out the command;

20 identifying the associated said code by consulting said second association

21 for said selected memory elements; and

22 executing the identified code for carrying out the command in the library

23 with said selected memory elements.

1 18. The article of manufacture of claim 17, wherein said program of computer

2 instructions may cause said library controller to execute the identified code at least by reading

3 data from a hard disk drive in the library, formatting said data according to the identified said

4 protocol, and thereafter sending said data to the host computer.

1   19.   The article of manufacture of claim 17, wherein said program of computer

2   instructions may cause said library controller to execute the identified code at least by writing to a

3   hard disk drive in the library.